National Institute of Standards and Technology
Gaithersburg, MD 20899

Certificate Number: 92-192A2

National Type Evaluation Program

Certificate of Conformance

for Load Cells

For:

Load Cell
Tension, Stainless Steel
Model Family: ZX*
n_{max} Single Cell: 5,000, Class III
n_{max} Single Cell: 10,000, Class III L
Capacity: 250 to 20,000 lb

Accuracy Class: III, III L

Submitted by:

Cardinal Scale Manufacturing Co.
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Standard Features and Options

* The specific models and capacities of load cells covered by this certificate are listed on page 2.

Model	Capacity (lb)	Class III Single Cell v_{min} (lb)	Class III Multiple Cell v_{min} (lb)	Class III L Single Cell v_{min} (lb)	Minimum Dead Load (lb)
ZX-250	250	0.025	0.025	0.02	10.0
ZX-500	500	0.050	0.050	0.04	10.0
ZX-1,000	1,000	0.100	0.100	0.08	10.0
ZX-2,500	2,500	0.250	0.250	0.20	10.0
ZX-3,000	3,000		0.60	0.24	10.0
ZX-5,000	5,000		1.00	0.40	10.0
ZX-10,000	10,000		2.00	0.80	10.0
ZX-20,000	20,000		4.00	1.60	10.0

4-wire design

Nominal Output: 3.0 mV/V
Temperature Range: -10 to 40 °C (14 to 104 °F)

This device was evaluated under the National Type Evaluation Program (NTEP) and was found to comply with the applicable technical requirements of Handbook 44, "Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages.

Effective Date: March 31, 1994

Chief, Office of Weights and Measures
Issue Date: April 22, 1994

Cardinal Scale Manufacturing Co.
Load Cell, Tension, Stainless Steel
Model Family: ZX

Application: The load cells may be used in both Class III and III L scales for both single and multiple cell applications consistent with the model designations, number of scale divisions, and parameters specified in this certificate. Load cells of a given accuracy class may be used in applications with lower accuracy class requirements provided the number of scale divisions, the v_{min} values, and temperature range are suitable for the application. The Manufacturer may market load cells with fewer scale divisions (n_{max}) and with larger v_{min} values than those listed on the certificate. However, the load cells must be marked with the appropriate n_{max} and v_{min} for which the load cell may be used.

Test Conditions: This certificate supersedes Certificate of Conformance No. 92-192A1 and is issued to decrease the vmin values for the class III L single cell models listed on page 2. The original test conditions are repeated below for reference.

Certificate of Conformance 92-192A1: Two 5,000 lb capacity load cells was were tested at NIST using dead weights as the reference standard. The data were analyzed for both single and multiple load cell applications. The cells were tested over a temperature range of -10 to 40 °C. Three tests were run on each cell at each temperature. The temperature effect on zero was measured and a time dependence (creep) test was performed. The barometric pressure test was waived due to the insensitivity of the load cell design to changes in barometric pressure.

Certificate of Conformance No. 92-192: Two 500-lb capacity load cells were tested at NIST using dead weights as the reference standard. The data were analyzed for both Class III and Class III L single load cell applications. The cells were tested over a temperature range of -10 to 40 °C. Three tests were run on each cell at each temperature. The temperature effect on zero was measured and a time dependence (creep) test was performed. The barometric pressure test was waived due to the insensitivity of the load cell design to changes in barometric pressure.

Representatives from the National Institute of Standards and Technology analyzed the data. The results indicate that the load cells comply with the applicable requirements of NIST Handbook 44.

Type Evaluation Criteria Used: NIST Handbook 44, 1994 Edition

Tested By: NIST Force Group, NIST Office of Weights and Measures

Reviewed By: T. Grimes (NIST)